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LETTER PROPOSING FOCUSED SAMPLING AND ANALYSIS PLAN FOR AREA OF
CONCERN 700 (AOC 700) ZONE C CNC CHARLESTON SC
1/30/2002
CH2MHILL

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January 30, 2002

158814.ZC.EX.03

Mr. David Scaturo
Corrective Action Engineering Section
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subject: Sampling and Analysis Plan for AOC 700, Zone C
Charleston Naval Complex, North Charleston, South Carolina

Dear Mr. Scaturo:

The purpose of this letter is to present a proposed focused Sampling and Analysis Plan (SAP), as well as the rationale for the additional investigation, at Area of Concern (AOC) 700 in Zone C of the Charleston Naval Complex (CNC).

Background

As part of RCRA CA activities, a RCRA Facility Investigation (RFI) report was finalized for Zone C (EnSafe Inc. [EnSafe], 1997). The RFI at AOC 700 did not identify the presence of significant levels of soil or groundwater contamination, and the site was recommended for No Further Action (NFA) in the final *Zone C RFI Report, Revision 0* (EnSafe, 1997). However, an additional surface soil sample collected at AOC 700 as part of the investigation of Solid Waste Management Unit (SWMU) 37, the sanitary sewer system, revealed an arsenic concentration of 38.9 milligrams per kilogram (mg/kg), which exceeded the Zone C background reference concentration (BRC) for arsenic of 14.2 mg/kg. This value also exceeds the Zone C arsenic soil screening level (SSL) of 29 mg/kg.

CH2M-Jones determined that removal of the small area with elevated arsenic-containing soil was appropriate and should enable closeout of the site in a condition suitable for future unrestricted use (i.e., with no land use controls). The *Interim Measure (IM) Work Plan (WP)*, AOC 700, Building 1646, Zone C (*Revision 0*) was prepared by CH2M-Jones in October 2000, and implemented at the site.

Analytical results from soil samples collected at AOC 700 indicated that the extent of arsenic-impacted soil at the site was greater than expected. The results of the sampling were used to define the extent of the actual excavation. Surface and subsurface soils were removed as part of the IM. The analytical results and the extent of the excavation were

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presented in the *IM Completion Report (CR)*, AOC 700, Zone C (*Revision 0*) submitted by CH2M-Jones in October 2001.

Delineation samples collected at soil boring LC037SB025 contained arsenic at concentrations above the Media Cleanup Standards (MCSs) established in the IM WP. The location of the boring is within 20 feet (ft) of the railroad lines. As such, the surface soil sample result for arsenic was compared to the background concentration developed for samples collected near railroad lines (as stipulated by CH2M-Jones in the Technical Memorandum, *Preliminary Results for Additional Background PAH Sampling from CNC Main Base Railroad Lines and Annex (Zone K)*, dated May 3, 2001). Because the result was (1) within the range of arsenic concentrations typically found along railroad lines, and (2) the soil boring was near the railroad lines, soil at this location was not considered for removal.

The subsurface sample at this location (LC037SB025) also contained arsenic at a concentration above the MCS. Although subsurface soil was not included in the study of arsenic concentrations near railroad lines, the elevated arsenic concentration in the subsurface sample was considered to be the result of railroad activities. In addition, because of the proximity of the boring to the railroad lines, the location was not considered for removal and the IM was considered complete.

The South Carolina Department of Health and Environmental Control (SCDHEC) issued comments regarding the IM CR for AOC 700 on January 18, 2002. SCDHEC expressed concern that arsenic in subsurface soil at LC037SB025 was above the MCS, and that the extent had not been completely delineated during the IM. To address this concern, CH2M-Jones has prepared this SAP to delineate the extent of arsenic at soil boring LC037SB025.

Proposed Additional Investigation

Because the areal extent of arsenic-impacted soil near LC037SB025 has not been determined, CH2M-Jones is proposing the installation of three additional soil borings in the vicinity of LC037SB025 at AOC 700. The locations of the proposed soil borings are presented on Figure 1 (see attached). The rationale for the proposed soil borings is presented below.

One soil boring (0 to 1 foot below land surface [ft bls]) adjacent to LC037SB025 will be advanced and a subsurface sample collected. The sample will be analyzed for arsenic. The analytical results from this sample will be used to verify the previous analytical results from sample 037SB02502.

A surface soil (0 to 1 ft bls) and subsurface soil (3 to 5 ft bls) sample will be collected from each of two soil borings located approximately 20 ft radially outward from LC037SB025. The samples will be analyzed for arsenic. The results from these samples will be used to define the extent of arsenic around soil boring LC037SB025. In the event that these samples exhibit elevated levels of arsenic (above the range of concentrations reported in the Zone C grid samples), additional samples will be considered to complete the delineation.

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The sampling rationale and sample collection procedures will be performed in accordance with the Environmental Services Division *Standard Operating Procedures and Quality Assurance Manual* (ESDSOPQAM), (U.S. Environmental Protection Agency [EPA], 1996). The sample collection and analyses will also follow the procedures described in the approved Comprehensive Sampling and Analysis Plan (CSAP) portion of the *Final Comprehensive RFI Work Plan* (EnSafe / Allen & Hoshall, 1994). The CSAP outlines all monitoring procedures to be performed during the investigation to characterize the environmental setting, source, and releases of hazardous constituents. In addition, the CSAP includes the Quality Assurance Plan (QAP) and Data Management Plan (DMP) to verify that all information and data are valid and properly documented. Sample analysis will be performed in accordance with the guidance in EPA's *Test Methods for Evaluating Solid Waste, SW-846, Revision 4* (1996), Office of Solid Waste and Emergency Response (OSWER) and in the EPA Environmental Services Division *Laboratory Operations and Quality Control Manual* (ESDLOQCM) (1997).

The analytical results of the proposed soil samples will be presented in a Corrective Measures Study (CMS) Work Plan (WP) for AOC 700.

The principal author of this SAP is Jim Edens. If you have any questions, comments or require additional information, please do not hesitate to contact him at 352/335-5877, extension 2491.

Sincerely,

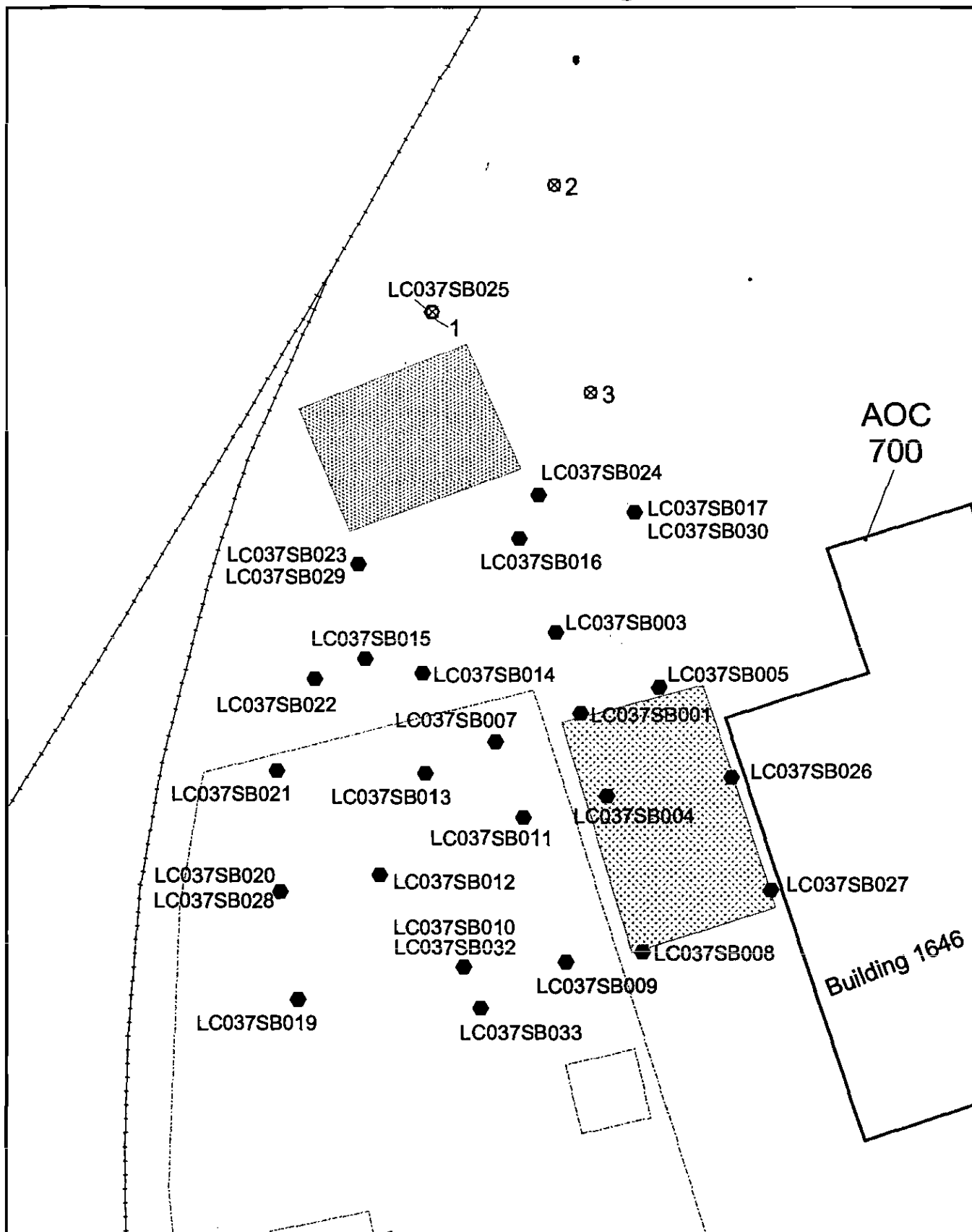
CH2M HILL, Inc.



Project Manager
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enclosures

Cc: Tony Hunt, P.E. / SOUTH DIV
Tom Beisel, P.G. / CH2M HILL, ATL



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|-------------------------------------|-----------------|
| ⊗ Proposed Soil Sample Locations | □ Buildings |
| ● Interim Measures Sample Locations | ▨ Concrete Slab |
| ≡ Railroads | |
| ≡ Pavement | |
| □ AOC Boundary | |
| □ SWMU Boundary | |



0 10 20 Feet

Figure 1
Proposed Sample Locations
AOC 700, Zone C
Charleston Naval Complex

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